BY ORDER OF USCINCSPACE

UNITED STATES SPACE COMMAND INSTRUCTION 13-4

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Space, Missile, Command, and Control

MINIMIZATION AND MITIGATION OF SPACE DEBRIS

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This instruction implements ***Department of Defense Directive (DoDD) Space Policy***, 1 July 1999. It establishes the United States Space Command (USSPACECOM) policy and guidance for minimizing and mitigating the proliferation and effects of space debris on military space systems. The objective is to safeguard space systems under USSPACECOM authority from the hazards of space debris (mitigation) and to constrain the space debris hazard that launch, operations, and end of life disposals can cause to other man-made objects in Earth orbit (minimization). Its authority is derived from the ***National Space Policy, Department of Defense (DoD) Space Policy*** and the ***Office of the Under Secretary of Defense (DUSD (Space)) Memorandum.*** This instruction applies to HQ USSPACECOM and Component Service Commands and their mission systems and operations placed in service on-orbit after 1 May 1998. It does not apply to Air Force Reserve Command nor Air National Guard units.

SUMMARY OF REVISIONS

The publication incorporates administrative changes. A bar (|) indicates a revision from the previous edition.

1. Background. ***The National Space Policy*** of September 1996 states that the United States will seek to minimize the creation of space debris. Also, DoD, NASA, and the Intelligence Community, in cooperation with the private sector, will develop design guidelines for future government procurements of spacecraft, launch vehicles, and services that minimize or reduce accumulation of space debris consistent with mission requirements and cost effectiveness. ***The DoD Policy*** of July 1999 states that DoD will seek to minimize the impact of space debris on its military operations. In addition, the Office of the Under Secretary of Defense (Space) issued Joint DoD/NASA objectives and guidelines in response to the recommendations published in the "***Interagency Report on Orbit Debris*** 1995" by the National Science and Technology Council. The overall purpose is to encourage debris mitigation and minimization practices within DoD, NASA, Industry, and eventually the International Community.

2. References:

2.1. Department of Defense Directive (DoDD) Space Policy , July 1999.

2.2. Office of Science and Technology Policy, ***Interagency Report on Orbital Debris***, November 1995.

2.3. Presidential Decision Directive (PDD) NSC-49/NSTC-8, ***National Space Policy***, 14 September 1996.

2.4. DUSD (Space), ***Joint DoD/NASA Work Plan on Orbital Debris***, 27 June 1997.

2.5. DUSD (Space) Memorandum***, Joint DoD/NASA Guidelines on Orbital Debris Mitigation Practices***, 31 October 1997.

2.6. UPD10-39, ***Satellite Disposal Procedures***, 1 February 2001.

2.7. Orbital Debris Mitigation – *DoD Standard Practices Review*, 4 December 2000.

3. Responsibilities. USSPACECOM will make inputs to higher and lower level organizations in the development of policy and guidance on space debris. Each service component space command, in coordination with USSPACECOM, will establish review and waiver processes, and processes and procedures, as appropriate, for adherence to space debris minimization/mitigation requirements. In addition, the USSPACECOM Director of Operations (J3)/Director of Plans will review and approve or request modification of implementing processes and procedures established by the Component Service Commands. Request for proposals, design reviews, and requirement documents for development or upgrading of space systems are reviewed for efforts to minimize/mitigate on-orbit space debris and accompanying cost benefit tradeoffs. The following guides the operation, development, and conception of current and future space systems:

3.1. USSPACECOM fosters and participates in activities to improve understanding of the risk that space debris imposes on military, civil, and commercial space activities.

3.2. Component space commands foster and maintain a high level of awareness of the requirement to minimize/mitigate space debris. They monitor space debris minimization/mitigation efforts of their corresponding acquisition organizations and, within their authority, assure that minimization/mitigation of space debris is addressed explicitly in all space systems requirements, developments, and tests.

3.3. Within the extent of their authority, component space commands ensure the design and documentation process for space system development, modification or upgrade will permit clear identification of cost, schedule, and performance impacts of efforts to minimize/mitigate debris. System development or modification tradeoffs are reviewed and approved by the affected service component space commands and coordinated with USSPACECOM/J3/J5. Provide to USSPACECOM sufficient information to assess the adequacy of space debris minimization and mitigation measures proposed for individual space systems and operations.

3.4. Whenever feasible, component space commands ensure the concept of operations (CONOPS) of space systems in development or upgrade includes space debris minimization/mitigation controls and operations. These CONOPS are coordinated with USSPACECOM/J3/J5.

3.5. The Directorate of Analysis (AN) assesses the technical aspects of proposed space debris minimization and mitigation procedures, including confirming projections of the debris environment,

assessments of projected damage or tradeoffs among minimization/mitigation, cost, and mission capability.

3.6. USSPACECOM and component space commands will strive to implement the objectives and guidelines as outlined in the Joint DoD/NASA Guidelines on Orbital Debris Mitigation Practices in accordance with cost effectiveness and mission requirements. The objectives are as follows:

3.6.1. Control of debris released during normal operations. Programs and projects will assess and limit the amount of debris released in a planned manner during normal operations.

3.6.2. Minimize debris generated by accidental explosions. Programs and projects will assess and limit the probability of accidental explosion during and after completion of mission operations.

3.6.3. Select safe flight profile and operational configuration. Programs and projects will assess and limit the probability of operational space systems becoming a source of debris.

3.6.4. Post-mission disposal of space structures. This objective is covered by UPD10-39.

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